

## ***Technology Adoption Decisions in Dairy Production and the Role of Herd Expansion***

### ***Agricultural and Resource Economics Review***

Volume 28, Number 1  
April 1999

Northeastern Ag and  
Resource Economics  
Association  
Hanover, PA: Sheridan  
Press, Inc.

"Technology Adoption  
Decisions in Dairy  
Production and the Role  
of Herd Expansion"  
Pages 84-95

by Hisham S. El-Osta  
and Mitchell J. Morehart

For more information  
contact Hisham El-Osta  
at [helosta@ers.usda.gov](mailto:helosta@ers.usda.gov)  
or Mitchell Morehart at  
[morehart@ers.usda.gov](mailto:morehart@ers.usda.gov)  
<http://www.ers.usda.gov>

**T**he notion that technological change is a major determinant of structural change is perhaps most relevant to farms that specialize in dairy production. The expense of advanced "laborsaving" technologies, which could be afforded by larger operations, has also restrained "open" entry into dairy farming. In addition, technological change limited to milk production has also influenced specialization in dairy farming. As a result, fewer but larger farms now characterize the structure of U.S. milk production. Because of the structural implication of technological adoption, the analysis examines the determinants of adopting capital- and management-intensive technologies, with special emphasis given to the role of herd expansion.

Study results identified age, size, and specialization in dairy production as important in increasing the likelihood of adopting a capital-intensive technology. Education and size of operation positively influenced the decision to adopt a management-intensive technology. Age, education, credit reserves, size, and increased use of hired labor positively influenced the decision to adopt a combined capital- and management-intensive technology. Simulation results show that an increase in farm size will increase production by a larger proportion implying a scale-bias towards technology adoption.

### **AGRICULTURAL AND RESOURCE ECONOMICS REVIEW**

Are Agricultural Experiment Station Faculty Salaries Competitively or Monopsonistically Determined? / *Barrett and Bailey*  
Examining Packer Choice of Slaughter Cattle Procurement and Pricing Methods / *Capps, Jr., Love, Williams, and Adams*  
Agricultural Land Use Choice: A Discrete Choice Approach / *Claassen and Tegene*  
Multiple Agents, and Agricultural Nonpoint-Source Water Pollution Control Policies / *Smith and Tomasi*  
Factors Influencing Support for Rural Land Use Control: A Case Study / *McLeod, Woithage, and Menkhass*  
Some Imperatives of the Green Revolution: Technical Efficiency and Ownership of Inputs in Indian Agriculture / *Jha and Rhodes*  
Economic Insights into the Siting Problem: An Application of the Expected Utility Model / *Halstead, Whitcomb, and Hamilton*  
Income of Farmers Who Use Direct Marketing / *Gocindasamy, Hossain, and Adelaia*  
Technology Adoption Decisions in Dairy Production and the Role of Herd Expansion / *El-Osta and Morehart*  
The Kyoto Protocol: Economic Effects of Energy Prices on Northern Plains Dryland Grain Production / *Antle, Capalbo, Johnson, and Miljkovic*  
A Model for the Economic Evaluation of Plantation Biomass Production for Co-firing with Coal in Electricity Production / *Nienow, McNamara, Gillespie, and Prechel*

Volume Number

Published by the  
Northeastern Agricultural and  
Resource Economics Association

**28/1**

April 1999